AK

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,918	01/24/2001	Ming-Chun Hsiao	EM/HSIAO/6466	2863

7590 08/19/2003

BACON & THOMAS, PLLC
625 Slaters Lane, 4th Floor
Alexandria, VA 22314-1176

EXAMINER
DONG, DALEI

ART UNIT	PAPER NUMBER
2875	

DATE MAILED: 08/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.	Applicant(s)	
	09/767,918	HSIAO ET AL.	
	Examiner	Art Unit	
	Dalei Dong	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,990,614 to Spindt in view of U.S. Patent No. 5,770,919 to Tjaden in further view of U.S. Patent No. 5,717,287 to Amrine.

Regarding to claims 11 and 17, Spindt discloses in Figure 3, an sectional view of a FET comprising "patterned layers 22 of field emitter 10 consist of a lower electrically non-insulating emitter region 50, a dielectric layer 52, a group of generally parallel control electrodes 54, a two-dimensional array of sets of field-emission electron-emissive elements 56, and a focusing system 58. Lower non-insulating region 50, which lies on the interior surface of baseplate 10, contains a group of generally parallel emitter electrodes extending in the row direction, i.e., the direction along the rows of pixels in the FED . Non-insulating region 50 normally also includes an electrically resistive layer overlying the emitters electrodes. Dielectric layer 52 overlies non-insulating region 50" (column 10, line 2-13).

Spindt also discloses in Figure 3, Patterned layers 26 of light-emitting device 12 in the embodiment of FIG. 3 consists of a two-dimensional array of phosphor light-

emissive elements 70, a "black matrix" 72, and an electrically conductive light-reflective layer 74 that serves as the anode (or collector) for the FED . Light-emitting elements 70 are situated on the interior surface of faceplate 24 respectively across from the sets of electron-emissive elements 56. Black matrix 72 overlies the interior surface of faceplate 24 in the waffle-like space between light-emissive elements 70. Metal pieces (not shown), which provide fabrication alignment tolerances, may underlie edge portions of black matrix 72. Light-reflective anode layer 74 is situated on light-emissive elements 70 and black matrix 72. Further information on typical implementations of components 70, 72, and 74 is presented in Haven et al, U.S. patent application Ser. No. 08/846,522, filed Apr. 29, 1997" (column 10, line 52-67).

Spindt further discloses in Figure 3, "each spacer wall 16 in the embodiment of FIG. 3 consists of a generally flat main spacer wall (or main spacer portion) 80, multiple electrically non-insulating face electrodes 82, and a pair of electrically non-insulating end (or edge) electrodes 84. Face electrodes 82, which preferably consist of electrically conductive material, can be situated on one or both of the outer faces of each main wall 80. In the embodiment of FIG. 3, face electrodes 82 are specifically situated on one of the outer faces of each main wall 80 closer to light-emitting device 12 than to field emitter 10" (column 11, line 1-10).

However, Spindt does not disclose an ITO conducting glass and a Cr/CrO_x layer area. Tjaden teaches in Figure 1, "Faceplate 140 is a cathodoluminescent screen that is constructed from dear glass or other suitable material. A conductive material, such as indium tin oxide ("ITO") is disposed on the surface of the glass facing the extraction

structure. ITO layer 142 serves as the anode of the FED . A high vacuum is maintained in area 134 between faceplate 140 and baseplate 102" (column 2, line 32-38).

However, Tjaden fails to teach a Cr/CrO_x layer area. Amrine teaches in Figure 1, "included on anode display plate 110 are a plurality of metallic bonding pads 160 made from aluminum and disposed between phosphor deposits 120. Metallic bonding pads 160 are formed by selectively depositing aluminum onto layer 124 by using one of a number of standard metal film deposition techniques, known to one skilled in the art. Metallic bonding pads 160 are disposed at those locations on anode display plate 110 where it is desired to bond spacers 150. The thickness of metallic bonding pads 160 is in a range of 0.05-5 micrometers" (column 3, line 18-27).

Amrine also teaches "Other suitable metals may be used for metallic bonding pads 160; a suitable metal provides cations that have diffusivities in glass which are low enough to allow high electrostatic forces to develop before the cations commence migration into the glass. Such suitable metals include iron, nickel, chromium, silicon, and aluminum" (column 5, line 6-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have add the ITO layer of Tjaden to the faceplate of Spindt and utilize the metallic bonding pad of Amrine for bonding the spacers of Spindt in order to improve the efficiency of electrons emitted with low consumption of power and securely and effectively affixing the spacer to better controlling thermal, electrical, and dimensional properties of the display device.

Regarding to claims 12-13, 18-20, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, these limitations have not been given patentable weight.

Regarding to claims 12, 14-16, Spindt, Tjaden and Amrine discloses the claimed invention except for the thickness of different layers in the limitations. It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust the thickness of different layer acordiing to the design specification, since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233. Furthermore, the Applicant has not established that the thickness of different layers is critical to the invention and hence, the proper thickness can be determined by routine experimentation by one having ordinary skill in the art.

Response to Arguments

3. Applicant's arguments filed July 18, 2003 have been fully considered but they are not persuasive.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include

knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Also, In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, all the prior art of record are analogous art in the field emitter display panel, and they all teaches or discloses the utilization and the mounting of the spacer within the display panel.

Further in response to applicant's argument that the claimed invention AlO_x/CrO_x, but the prior art of record utilizes Al/Cr. Examiner asserts that applicant does not specify the numerical value of the variable X for the oxygen component of the claimed invention; therefore, Examiner interprets variable X can be any value e.g. 0 to a million. Accordingly, Examiner interprets the variable X to be a value of 0, and the oxygen or oxide component of the aluminum and chromium is non existence, as shown in the prior art of record,. Thus, Examiner asserts that the prior art of record is valid and maintains the rejection.

Further yet in response to Applicant's argument that the claimed invention is manufactured in a different process than the prior art of record. Examiner asserts that the

method of manufacturing a device is not germane to the issue of patentability of the device itself. Therefore, is not given a patentable weight.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (703)308-2870. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703)305-4939. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D.D.
August 15, 2003

THOMAS M. SEMBER
PRIMARY EXAMINER